

2nd Substitute Specification – Clean Version

CLAIMS:

1. An isolated nucleic acid molecule comprising a sequence of nucleotides or complementary sequence of nucleotides defining a promoter or a derivative or homologue thereof, wherein, in its native form, the promoter is inducible in response to physical stimulation.
2. An isolated nucleic acid molecule according to claim 1 wherein, in its native form, the promoter directs expression of a gene associated with ethylene production.
3. An isolated nucleic acid molecule according to claim 2 wherein the promoter, in its native form, directs expression of a gene encoding 1-aminocyclopropane-1-carboxylic acid (ACC) synthase.
4. An isolated nucleic acid molecule according to any one of claims 1 to 3 wherein the promoter is selected from the group consisting of:
 - (i) a promoter which directs expression of a nucleotide sequence as substantially set forth in SEQ ID NO:1;
 - (ii) a promoter which directs expression of a nucleotide sequence which hybridizes under low stringency conditions to SEQ ID NO:1;
 - (iii) a promoter which directs expression of a nucleotide sequence having at least about 50% similarity to SEQ ID NO:1;
 - (iv) a promoter which directs expression of a nucleotide sequence which encodes an amino acid sequence substantially as set forth in SEQ ID NO:2;
 - (v) a promoter which directs expression of a nucleotide sequence which encodes an amino acid sequence which has at least about 60% similarity to SEQ ID NO:2.

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5. An isolated nucleic acid molecule according to any one of claims 1 to 4 comprising a nucleotide sequence substantially as set forth in SEQ ID NO:3 or a nucleotide sequence having at least 25% similarity thereto or a nucleotide sequence capable of hybridising to SEQ ID NO:3 under low stringency conditions.

6. An isolated nucleic acid molecule comprising a sequence of nucleotides or complementary sequence of nucleotides defining a promoter or a derivative or homologue thereof, wherein, in its native form, the promoter is inducible in response to physical stimulation and wherein the promoter is selected from the list consisting of:

(i) a promoter which, in its native form, directs expression of a nucleotide sequence substantially as set forth in SEQ ID NO:1;

(ii) a promoter which, in its native form, directs expression of a nucleotide sequence which hybridizes under low stringency conditions to SEQ ID NO:1;

(iii) a promoter which, in its native form, directs expression of a nucleotide sequence having at least about 50% similarity to SEQ ID NO:1;

(iv) a promoter which, in its native form, directs expression of a nucleotide sequence which encodes an amino acid sequence substantially as set forth in SEQ ID NO:2;

(v) a promoter which, in its native form, directs expression of a nucleotide sequence which encodes an amino acid sequence which has at least about 60% similarity to SEQ ID NO:2;

(vi) a promoter comprising a nucleotide sequence substantially as set forth in SEQ ID NO:3;

(vii) a promoter comprising a nucleotide sequence capable of hybridizing to SEQ

ID NO:3 under low stringency conditions; and

(viii) a promoter comprising a nucleotide sequence having at least about 25% similarity to SEQ ID NO:3.

7. A nucleic acid molecule defining a promoter or a homologue or derivative thereof said nucleic acid molecule obtainable by the method of isolating genomic DNA from plant cells, rendering the genomic DNA or portion thereof single stranded and then identifying a region on genomic DNA which hybridizes to a primer corresponding to all or part of SEQ ID NO:1 or a complementary form thereof and the cloning DNA upstream of the region of primer hybridization.

8. A nucleic acid according to claim 7 alternatively comprising amplifying regions of single stranded genomic DNA with a primer corresponding to all or part of SEQ ID NO:1 or a complementary form thereof and then cloning DNA upstream of the amplified region.

9. An isolated promoter obtainable by the method of:

(i) amplifying a region of single stranded plant genomic DNA with the primers SEQ ID NO: 4 and SEQ ID NO:5;

(ii) optionally amplifying the amplified DNA of (i) above with primers selected from SEQ ID NO: 6 and SEQ ID NO:7 or SEQ ID NO: 8 and SEQ ID NO:9;

(iii) running amplified DNA on a gel and excising the product of amplification; and

(iv) subcloning product and identifying the promoter.

10. A nucleic acid according to claim 7 or 8 or a promoter according to claim 9 comprising a nucleotide sequence substantially as set forth in SEQ ID NO:3 or a nucleotide sequence having at least 25% similarity thereto or a nucleotide sequence capable of hybridising to SEQ ID NO:3 under low stringency conditions.

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11. A genetic construct comprising a nucleic acid molecule defining a promoter according to any one of claims 1 to 10.
12. A genetic construct according to claim 11 further comprising a structural or regulatory gene operably linked to said promoter.
13. A method of altering a characteristic of a plant said method comprising introducing a genetic construct according to claim 12 into a cell or group of cells of a plant and wherein said structural or regulatory gene facilitates the altering of said plant characteristic, regenerating a plant or plantlet from said cell or group of cells carrying said genetic construct and growing or subjecting said plant or plantlet to conditions sufficient to induce the promoter in said genetic construct.
14. A method according to claim 13 wherein the altered plant characteristic comprises resistance to a plant pathogen, altered nutritional characteristics, expression of a plantabody, an altered biochemical pathway, altered fertility and/or altered flower colour.
15. A modular promoter, said modular promoter comprising at least one portion which is derived from a promoter which, in its native form, directs expression of a gene associated with ethylene biosynthesis and is inducible by physical stimulation.
16. A modular promoter according to claim 15 wherein the native promoter directs expression of a gene encoding 1-aminocyclopropane-1-carboxylic acid (ACC) synthase.
17. A modular promoter according to any one of claims 15 to 16 wherein the native promoter is selected from the group consisting of:
 - (i) a promoter which directs expression of a nucleotide sequence as substantially set forth in SEQ ID NO:1;

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- (ii) a promoter which directs expression of a nucleotide sequence which hybridizes under low stringency conditions to SEQ ID NO:1;
 - (iii) a promoter which directs expression of a nucleotide sequence having at least about 50% similarity to SEQ ID NO:1;
 - (iv) a promoter which directs expression of a nucleotide sequence which encodes an amino acid sequence substantially as set forth in SEQ ID NO:2;
 - (v) a promoter which directs expression of a nucleotide sequence which encodes an amino acid sequence which has at least about 50% similarity to SEQ ID NO:2.
18. A modular promoter according to any one of claims 1 to 4 comprising a nucleotide sequence substantially as set forth in SEQ ID NO:3 or a nucleotide sequence having at least 25% similarity thereto or a nucleotide sequence capable of hybridising to SEQ ID NO:3 under low stringency conditions.
19. A transgenic plant comprising a nucleic acid molecule according to any one of claims 1 to 9.
20. A vegetative or reproductive portion of a transgenic plant according to claim 19.
21. A cut or severed flower from a transgenic plant according to claim 19.